

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claim 36 has been amended to recite that the nickel is nickel salt, and that both lead segregated on the surface of the liquid-contacting part and nickel salt remaining as a residual on the lead, or the nickel salt alone, are removed with the cleaning fluid. Claim 36 has been further amended to incorporate the limitations of claim 38, as a result of which claim 38 has been cancelled, without prejudice. Support for these amendments is found on page 28, lines 10-27 and page 30, lines 1-24 of Applicant's specification. Therefore, no new matter has been added to the application.

The patentability of the presently claimed invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 36-73 under 35 U.S.C. §103(a) as being unpatentable over EP 0892084 (EP '084) in combination with JP 2002-155391 (JP '391) is respectfully traversed.

The Examiner takes the position that EP '084 discloses a method for preventing contamination by lead from a piping device made of a lead-containing copper alloy, wherein the method comprises contacting the surface with a cleaning fluid comprising nitric acid and hydrochloric acid. The Examiner admits that EP '084 fails to teach removing both lead and nickel, or nickel alone, the temperature, the ratio between the temperature and the time, the plating, and the hot water washing.

The Examiner further asserts that JP '391 discloses treating water feed appliances by applying nickel plating to the water feed appliances, and removing the nickel by using nitric acid.

The Examiner takes the position that it would have been obvious to one of ordinary skill in the art to use the process taught by EP '084 to treat the nickel, because JP '391 disclose using nitric acid for treating the nickel from a water supply instrument made from a copper alloy.

As stated above, Applicant has amended claim 36 to recite that the nickel is nickel salt, and that both lead segregated on the surface of the liquid-contacting part and nickel

salt remaining as a residual on the lead, or the nickel salt alone, are removed with the cleaning fluid. Further, the concentrations of nitric acid and hydrochloric acid have been incorporated into claim 36.

When a plumbing device has undergone nickel-plating treatment, the nickel salt components (nickel sulfate and nickel chloride) enter the inner surface of the plumbing device (surface of the liquid-contacting part) to allow nickel salt to adhere to the inside of the plumbing device as a residual. To be specific, as shown in FIG. 11, lead 26 is segregated in crystal grain boundaries 25 of the plumbing device, and nickel salt components 27 in the plating liquid adhere to the segregated lead, particularly remaining at the inside of the plumbing device mouth. (Please see page 28, line 10 to page 40, line 24 of Applicant's specification.)

The main characteristic of Applicant's invention lies in that the nickel salt is removed by cleaning using a special cleaning fluid so as to not elute the nickel salt into city water.

On the other hand, EP '084 discloses a technique of removing lead using a mixed acid, and the reference fails to teach or suggest the removal of nickel salt components.

JP '391 merely discloses a process comprising a nickel-plating step, a subsequent chromium-plating step and a step of removing the plated nickel only from a portion at which the plated nickel runs off the plated chromium.

Applicant encloses herewith Attachment A, which provides drawings demonstrating the status of a surface plated with Ni before and after the treatment of Example 1 of JP '391. As shown in photographs 2, 4, 6, and 7, when the surface of a plumbing device is treated with a high-concentration mixture of sulfuric acid and hydrogen peroxide, as disclosed in JP '391, it is vigorously corroded to expose the bronze surface of the plumbing device and the plated nickel to the outside. As a consequence, the difference in tendency of ionization between copper and nickel promotes the elution of nickel. The amount of the nickel eluted at this time is larger than that of the untreated plumbing device as shown in No. 4. In addition, as demonstrated by the photographs of the experiment, the treated plumbing device is tarnished, thereby making the device impossible to practically use.

In JP '391 with the aim of reducing nickel elution, the nickel coat running out the chromium coat cannot effectively be removed. Further, since the nickel coat always remains at the wetted section, the nickel component is eluted from this section through electrical conduction via a fluid, such as city water, to generate bimetallic corrosion and from the nickel coat per se. Thus, the nickel elution standards cannot satisfactorily be fulfilled. In addition, exfoliation of the nickel coat allows copper that is the base metal to be exposed, and there is a possibility of lead segregated on the surface layer being eluted.

Thus, Applicant's invention differs in configuration, operation and effect from the cited references.

For these reasons, the invention of claims 36-73 is patentable over the cited references.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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